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FR-A- 320 788
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Description

The present invention relates to a method and to means in sawing, preferably in frame sawing.

Frame sawing is a technique used for more than 100 years to saw timber length wise. With "high speed" frames up to 400 strokes/minute is used and about 60 pieces of 5 m long and at the top side 12" thick pine logs can be sawn each hour. A continous feeding of the work piece made it necessary to tilt the saw blades. The "over cutting" arising from this tilting of the blades was tried to be kept at about 55 % of the feeding for each stroke to avoid the blades from to much dragging at initial movement upwards. The sawing took place during just one of the two movements of the frame.

The british patent no 1879 from 1874 discloses a frame saw using the two movements of the frame for sawing. This patent describes how slides are tilted to guide the movement of the loose frame to split the saw cut in such a way that sawing is obtained in each direction over just half the work piece in a direction from its middle out towards the edge surfaces. This movement of the saw blades is very unsuitable when sawing e.g. veneer.

The british patent 1.187.892 discloses a frame saw technique where the movement of the loose frame is established by two cranks. The sawing movement thus obtained gives the blades a sawing action from one of the edge surfaces towards the centre of the work piece, i.e. this technique should be better suited for sawing e.g. veneer as the splinter of wood at the release side of the blades at least theoretically ought to decrease. In spite of a hope of less waste regarding to a reduced setting of the teeth of the saw blades, this fram sawing technique has shown to be hard to handle in the running production.

The swedish patent application 8303296-1 discloses a "power saw", in fact a fram saw technique where the loose frame is guided along tilted slides, their relative angular setting "range between 5° and 45°, preferably between 15° and 25°". In spite of extensive work of development the technique described in this swedish patent application has not been realized. Among other things a continous feed has been difficult to obtain.

The preamble of claim 1 is based onto the prior art according to FR-A-320 788.

The main object of the present invention is to obtain a sawing technique making it possible to use fram sawing of extremely thin sheets from a work piece continously fed through a loose fram.

An other object of the invention is to obtain a sawing technique admitting optimal sawing purposes for different kind of tree species.

Still an other object of the present invention is to obtain a sawing technique giving very smooth cutting surfaces also when sawing extremely thin sheets from a work piece.

The objects above according to the present invention are obtained by giving the method and the characteristics mentioned in the accompanying claim.

By compulsory guiding the movement of the saw blade along slides in such a way that the rearward part of the saw blade - seen in the moving direction thereof - is given a movement towards the work piece, while the forward part of the blade at the same time is given a movement away from the work piece, at which the ratio between the movement of the saw blade toward respectively from the work piece and the total movement of the sawblade is within the range 7:100 - 1:100, it has surprisingly shown to be possible to saw extremely thin sheets from a work piece by using thin saw blades without set teeth and with an effectiv chip transport.

By the fact that the sawing only takes place from the outside surfaces of the work piece toward the centre of it, splinting, when the blade leaves the work piece, is effectively prevented.

By arranging the feeding of the work piece towards the saw blade in such a way, that the ratio between the feeding distance of the work piece and the moving distance of the saw blade is in the range 4:100 and 1:100, it has succeded to saw sheets of veneer with a thickness of just 1 mm out of a work piece.

By arranging the the feeding speed of the work piece automatically adjustable, in one hand in relation to the size of the moving distance of the saw blade towards the work piece and in the other hand in relation to the cutting machinability of the work piece, it is easy to obtain optimal working conditions for different kind of tree species.

The invention will now be described in the following with reference to an example shown in the accompanying drawings, in which:-

- Fig. 1 schematically shows a neutral initial position of a saw blad and a work piece,
- Fig. 2 shows one of the end positions of the saw blade during sawing,
- Fig. 3 shows the other end positions of the saw blade during sawing, and
- Fig. 4 shows a perspective view of a set of saw blades for a loose frame designed to work according to the principles of this invention.

In fig. 1 the work piece 1 and the saw blade 2 are shown. The saw blade is guided on slides 3 and 4, their relative angular setting beeing in the range between 172° and 179°. Thus, in the figure

- to make it more clear - the angle shown has been strongly exaggerated.

In fig. 2 the saw blade 2 has taken one of the end positions and at the same time the work piece has been shown in a position for accomplishing working Thus, there is just the "rearward" part of the saw blade 2 coming into contact with the work piece 1 during working action.

In fig. 3 the other end position is shown, i.e. the position from which the working from the other direction is to be started. To be noted in regard to the outlook of the two different kind of cutting sections 5 and 6, the "ideal" position has been shown in the figures, i.e. the position where the working is equal at both cutting sections. When sawing a bigger dimensioned work piece, i.e. where the hight is increased and with the same setting of the feeding table, the cutting sections will be of different size as the centre line of the work piece will be situated above the centre of the saw blade when this is in a neutral position perpendicular to the work piece. To obtain optimal working conditions for more than one dimension the feeding table is suitably arranged adjustable in several positions.

In fig. 4 a set of saw blades for a loose frame designed to work according to the principles of this invention is shown.

The invention is not restricted to the embodiments described above, but modifications can be made within the scoop of the following claims.

Claims

1. Method in sawing with at least one saw blade where the sawing occurs in both directions of sawing and where the saw blade during its movement is forced to perform a swinging movement through slides arranged in angle set guides and at the same time the work piece is continously fed against the saw blade and wherein the movement of the saw blade is obtained by its compulsory guiding along slides so that the rearward part of the blade - seen in its moving direction - is moved towards the work piece while the forward part of the blade at the same time is moved away from the work piece, **characterized in** that the ratio between the movement of the saw blade towards respectively away from the work piece and the total movement of the saw blade during one sawing cycle is within the range 7:100 - 1:100 and that the ratio between the feeding distance of the work piece and the moving distance of the saw blade is in the range of 4:100 - 1:100.

Patentansprüche

1. Methode beim Sägen mit wenigstens einem Sägeblatt wo das Sägen in beiden Richtungen erfolgt und wo das Sägeblatt während seiner Bewegung gezwungen ist eine schwingende Bewegung durch Gleitschienen in einem Winkelsatz arrangiert auszuführen und gleichzeitig ist das Werkstück kontinuierlich an das Sägeblatt gedrückt und worin die Bewegung des Sägeblattes durch ihre zwingende Steuerung längs den Gleitschienen erhalten ist so dass der hinterste Teil des Blattes - in seiner beweglichen Richtung gesehen - sich gegen das Werkstück bewegt während der vordere Teil des Blattes sich weg vom Werkstück bewegt, darin **characterisiert** dass die Proportion zwischen der Bewegung des Sägeblattes gegen beziehungsweise weg vom Werkstück und die totale Bewegung des Sägeblattes während eines Sägenkreislaufes innerhalb des Bereiches von 7:100 - 1:100 ist und dass die Proportion zwischen der Speisung des Werkstückes und der Bewegung des Sägeblattes innerhalb des Bereiches von 4:100 - 1:100 ist.

Revendications

1. Méthode de sciage avec au moins une lame de scie où le sciage est fait dans les deux directions de sciage et où la lame de scie pendant son mouvement est forcée à faire un mouvement tournant par des glissières arrangées dans un jeu angulaire et simultanément la pièce à travailler est continuellement pressée contre la lame de scie et où le mouvement de la lame de scie par son guidage forcant le long des glissières est obtenue afin que la partie le plus en arrière de la lame - vue dans volante direction - bouge contre la pièce à travailler pendant que la partie de devant de la lame bouge loin de la pièce à travailler, en cela **caractérisée** que la proportion entre le mouvement de la lame de scie contre respectivement loin de la pièce à travailler et le mouvement total de la lame de scie pendant un cycle de sciage est dans la région de 7:100 - 1:100 et que la proportion entre l'avance de la pièce à travailler et le mouvement de la lame de scie est dans la région de 4:100 - 1:100.

FIG. 1

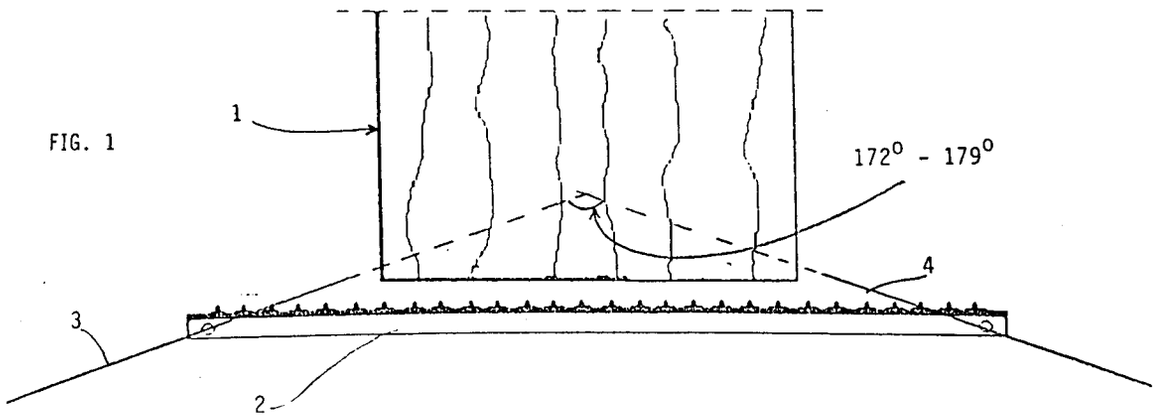


FIG. 2

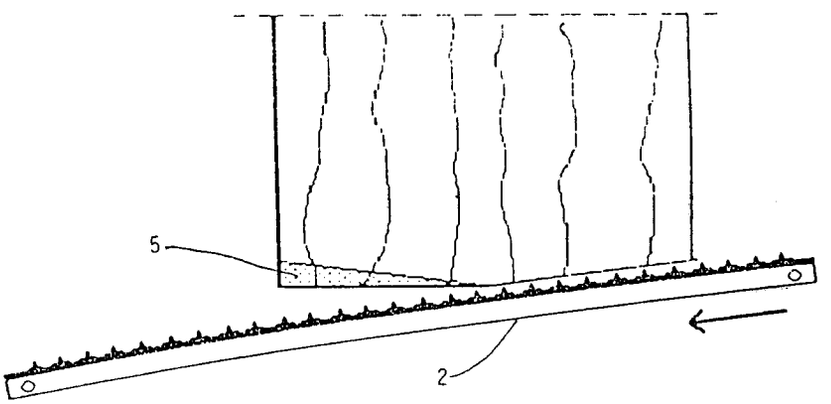


FIG. 3

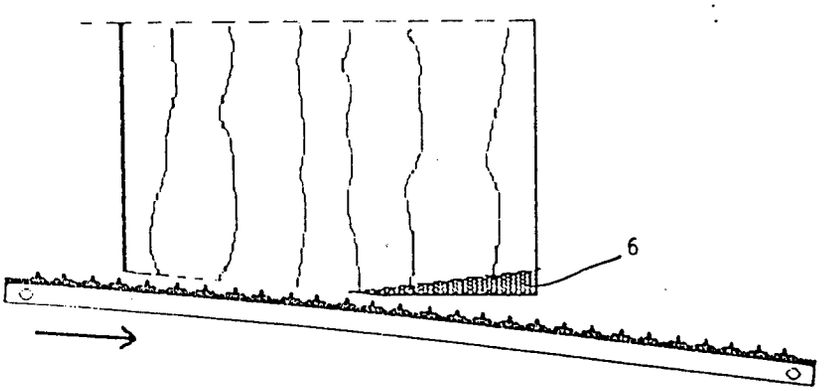


FIG. 4

